

AMENDMENTS TO THE CLAIMS:

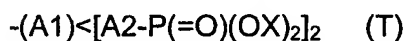
This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

54. (Previously Presented) A dendritic polymer of generation n comprising:

- a central core § of valence m ;
- optionally, generation chains branching around the core;
- an intermediate chain at the end of each generation chain that is present, or at the end of each bond around the core, where appropriate; and
- a terminal group at the end of each intermediate chain,

wherein said terminal group is represented by the formula:



wherein

-A1< represents the radical -CR< or -Heteroatom< ;

the radicals A2, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl;

X represents a radical -alkyl, -Aryl, -H or /M⁺, where M is a cation,

m represents an integer greater than or equal to 1;

n represents an integer from 0 to 12; and

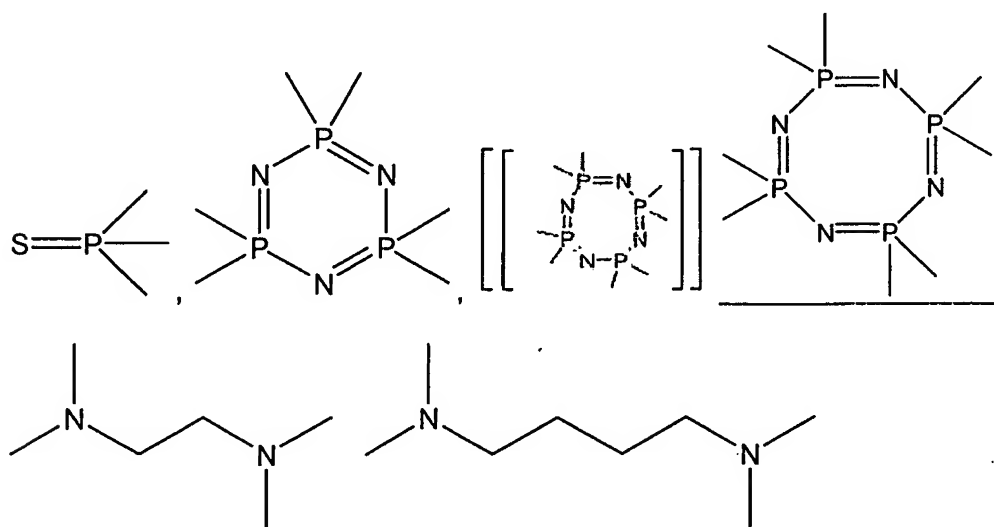
< represents two bonds situated on A1.

55. (Previously Presented) A dendritic polymer according to claim 54, having a structure of the DAB, PAMAM or PMMH type.

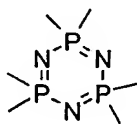
56. (Previously Presented) A dendritic polymer according to claim 54, wherein A1 represents the radical $-\text{CH}<$ or $-\text{N}<$.

57. (Previously Presented) A dendritic polymer according to claim 54, wherein A2 represents $-\text{Me}-$.

58. (Currently Amended) A dendritic polymer according to claim 54, wherein the central core § is selected from the following groups:



59. (Previously Presented) A dendritic polymer according to claim 54, wherein the central core § has the formula:



60. (Previously Presented) A dendritic polymer according to claim 54, wherein m represents an integer from 1 to 8.

61. (Previously Presented) A dendritic polymer according to claim 54, wherein m is selected from 3, 4 and 6.

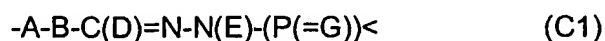
62. (Previously Presented) A dendritic polymer according to claim 54, wherein n is from 0 to 3.

63. (Previously Presented) A dendritic polymer according to claim 54, wherein the generation chains are selected from linear and branched hydrocarbon chains having from 1 to 12 chain members and optionally having one or more double or triple bonds, each of said chain members optionally being selected from a heteroatom, a group Aryl, Heteroaryl, $>C=O$, and $>C=NR$, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, $-NO_2$, -NRR', -CN, $-CF_3$, -OH, -OAlkyl, -Aryl, and -Aralkyl,

wherein

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

64. (Currently Amended) A dendritic polymer according to claim 54, wherein the generation chains, which are identical or different, are represented by the formula:



wherein:

A represents an oxygen, sulfur or phosphorus atom or a radical -NR-;

B represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

C represents a carbon atom,

D and E, which are identical or different, each independently of the other represents a hydrogen atom, or a radical -Alkyl, -OAlkyl, -Aryl, or -Aralkyl, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

G represents a sulfur, oxygen, nitrogen, Selenium or Tellurium atom or a radical =NR;

N represents a nitrogen atom; and

P represents a phosphorus atom; and

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl

65. (Previously Presented) A dendritic polymer according to claim 64, wherein in formula C1 A represents an oxygen atom.

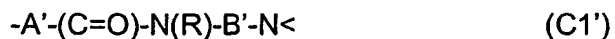
66. (Previously Presented) A dendritic polymer according to claim 64, wherein B represents an optionally substituted phenyl radical.

67. (Currently Amended) A dendritic polymers according to claim 64, wherein D represents ~~an oxygen~~ a hydrogen atom.

68. (Previously Presented) A dendritic polymer according to claim 64, wherein E represents a radical -Alkyl.

69. (Previously Presented) A dendritic polymer according to claim 64, wherein G represents a sulfur atom.

70. (Currently Amended) A dendritic polymer according to claim 54, wherein the generation chains are represented by the formula:



wherein

A' and B' each independently of the other represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl; and

~~R and R' have the meanings defined in claim 54~~

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

71. (Previously Presented) A dendritic polymer according to claim 70, wherein A' and B' each independently of the other represents a radical -Alkyl-.

72. (Currently Amended) A dendritic polymer according to claim 54, wherein the generation chains are represented by the formula:



wherein

A'' represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl,

wherein R and R' ~~have the meanings defined in claim 54,~~ which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

73. (Previously Presented) A dendritic polymer according to claim 72, wherein A'' represents an optionally substituted radical -Alkyl-.

74. (Currently Amended) A dendritic polymer according to claim 54, wherein the intermediate chains are selected from linear and branched hydrocarbon chains having from 1 to 12 chain members and optionally having one or more double or triple bonds, each of said chain members optionally being selected from a

heteroatom, a group Aryl, Heteroaryl, $>C=O$, and $>C=NR$, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, $-NO_2$, -NRR', -CN, $-CF_3$, -OH, -OAlkyl, -Aryl, and -Aralkyl,

wherein R and R' ~~have the meanings defined in claim 54, which are identical or different, each independently of the other represents a hydrogen atom or a radical~~
-Alkyl, -Aryl, or -Aralkyl.

75. (Currently Amended) A dendritic polymer according to claim 54, wherein the intermediate chains are represented by formula:



wherein

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents a radical -Aryl-, $-C(=O)-$, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical $-NO_2$, -NRR', -CN, $-CF_3$, -OH, -Alkyl, -Aryl, or -Aralkyl;

L represents a linear or branched hydrocarbon chain having from 1 to 6 chain members and optionally having one or more double or triple bonds, each of said chain members optionally being a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, $-NO_2$, -NRR', -CN, $-CF_3$, -OH, -OAlkyl, -Aryl, and -Aralkyl,

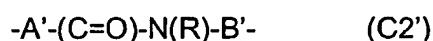
wherein R and R' ~~have the meanings defined in claim 54, which are identical or different, each independently of the other represents a hydrogen atom or a radical~~
-Alkyl, -Aryl, or -Aralkyl.

76. (Previously Presented) A dendritic polymer according to claim 75, wherein J represents an oxygen atom.

77. (Previously Presented) A dendritic polymer according to claim 75, wherein K represents an optionally substituted -Phenyl- radical.

78. (Previously Presented) A dendritic polymer according to claim 75, wherein L represents a radical $-(Alk)_a-$ or the radical $-C(D)=N-N(E)-(Alk)_a-$.

79. (Currently Amended) A dendritic polymer according to claim 54, wherein the intermediate chains are represented by formula



wherein A' and B' each independently of the other represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl; and

R and R' have the meanings defined in claim 54, which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

80. (Currently Amended) A dendritic polymer according to claim 54, wherein the intermediate chains are represented by formula



wherein

A" represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl; and

R and R' ~~have the meanings defined in claim 54, which are identical or~~
different, each independently of the other represents a hydrogen atom or a radical
-Alkyl, -Aryl, or -Aralkyl.

81. (Previously Presented) A dendritic polymer according to claim 54, wherein M⁺ represents a cation of an element of group IA, IIA, IIB or IIIA of the periodic table or a cation of a nitrogen-containing base.

82. (Previously Presented) A dendritic polymer according to claim 54, wherein M is selected from the atoms sodium and potassium.

83. (Previously Presented) A dendritic polymer according to claim 54, wherein the generation chains are identical.

84. (Currently Amended) A dendritic polymer according to claim 54,
wherein the generation chains, which may be identical or different, are represented
by the formula (C1) or (C2):

-A-B-C(D)=N-N(E)-(P(=G))< (C1)

-J-K-L- (C2)

wherein:

A represents an oxygen, sulfur or phosphorus atom or a radical -NR-;

B represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂-, -NRR', -CN-, -CF₃-, -OH-, -Alkyl-, -Aryl-, or -Aralkyl;

C represents a carbon atom,

D and E, which are identical or different, each independently of the other represents a hydrogen atom, or a radical -Alkyl-, -OAlkyl-, -Aryl-, or -Aralkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂-, -NRR', -CN-, -CF₃-, -OH-, -Alkyl-, -Aryl-, or -Aralkyl;

G represents a sulfur, oxygen, nitrogen, Selenium or Tellurium atom or a radical =NR;

N represents a nitrogen atom;

P represents a phosphorus atom;

J represents an oxygen atom, a sulfur atom or a radical -NR-;

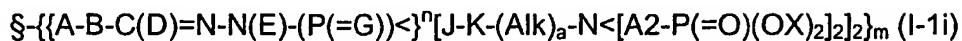
K represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂-, -NRR', -CN-, -CF₃-, -OH-, -Alkyl-, -Aryl-, or -Aralkyl;

L represents a linear or branched hydrocarbon chain having from 1 to 6 chain members and optionally having one or more double or triple bonds, each of said chain members optionally being a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl-, -Hal-, -NO₂-, -NRR', -CN-, -CF₃-, -OH-, -OAlkyl-, -Aryl-, and -Aralkyl.

wherein R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl-, -Aryl-, or -Aralkyl.

wherein in formulae (C1) and (C2), J and K are equal to A and B, respectively.

85. (Currently Amended) A dendritic polymer according to claim 54, which is represented by the following formula (I):



in which:

\S , A, B, C, D, E, G, N, P, J, K, X, A2, m, and n have the meanings defined above,

\S represents a central core;

$\{[A-B-C(D)=N-N(E)-(P(=G))<]^n$ represents generation chains;

J-K-(Alk)_a- represents an intermediate chain';

A represents an oxygen, sulfur or phosphorus atom or a radical -NR-;

B represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂-, -NRR', -CN, -CF₃-, -OH, -Alkyl, -Aryl, or -Aralkyl;

C represents a carbon atom,

D and E, which are identical or different, each independently of the other represents a hydrogen atom, or a radical -Alkyl, -OAlkyl, -Aryl, or -Aralkyl, each of which is optionally substituted by a Halogen atom or by a radical -NO₂-, -NRR', -CN, -CF₃-, -OH, -Alkyl, -Aryl, or -Aralkyl;

G represents a sulfur, oxygen, nitrogen, Selenium or Tellurium atom or a radical =NR;

N represents a nitrogen atom;

P represents a phosphorus atom;

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

X represents a radical -alkyl, -Aryl, -H or /M⁺, where M is a cation,

the radicals A₂, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

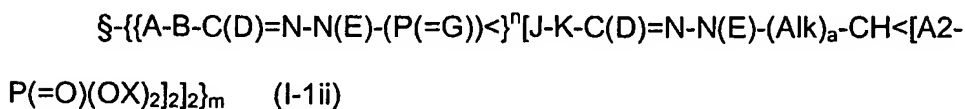
m represents an integer greater than or equal to 1;

n represents an integer from 0 to 12;

{ⁿ} denotes the branched structure of the generation n chains of said dendritic polymer, and

a represents 0 or 1.

86. (Currently Amended) A dendritic polymer according to claim 54, which is represented by the following formula (I-1ii):



in which:

§, A, B, C, D, E, G, N, P, J, K, X, A₂, m, and n have the meanings defined above,

§ represents a central core;

{A-B-C(D)=N-N(E)-(P(=G))<}ⁿ represents generation chains;

J-K-C(D)=N-N(E)-(Alk)_a- represents and intermediate chain;

A represents an oxygen, sulfur or phosphorus atom or a radical -NR-;

B represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

C represents a carbon atom,

D and E, which are identical or different, each independently of the other represents a hydrogen atom, or a radical -Alkyl, -OAlkyl, -Aryl, or -Aralkyl, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

G represents a sulfur, oxygen, nitrogen, Selenium or Tellurium atom or a radical =NR;

N represents a nitrogen atom;

P represents a phosphorus atom;

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl;

X represents a radical -alkyl, -Aryl, -H or /M⁺, where M is a cation,

the radicals A2, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

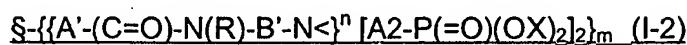
m represents an integer greater than or equal to 1;

n represents an integer from 0 to 12;

{}ⁿ denotes the branched structure of the generation n chains of said dendritic polymer, and

_____a represents 0 or 1.

87. (Currently Amended) A dendritic polymer according to claim 54, which is represented by the following formula (I-2):



in which:

~~S, A', B', C, N, P, X, A2, m, and n have the meanings defined above~~

S represents a central core;

{A'-(C=O)-N(R)-B'-N<}ⁿ represents intermediate chains;

A' and B' each independently of the other represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

C represents a carbon atom,

N represents a nitrogen atom;

P represents a phosphorus atom;

X represents a radical -alkyl, -Aryl, -H or /M⁺, where M is a cation,

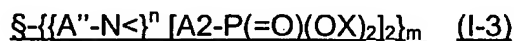
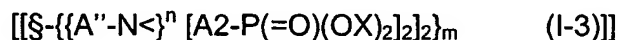
the radicals A2, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

m represents an integer greater than or equal to 1;

n represents an integer from 0 to 12; and

{ⁿ} denotes the branched structure of the generation n chains of said dendritic polymer.

88. (Currently Amended) A dendritic polymer according to claim 54, which is represented by the following formula (I-3):



in which:

S, A'', N, P, X, A2, m, and n have the meanings defined in above

S represents a central core;

{A''-N<}ⁿ represents intermediate chains;

A" represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

N represents a nitrogen atom;

P represents a phosphorus atom;

X represents a radical -alkyl, -Aryl, -H or /M⁺, where M is a cation,

the radicals A2, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

m represents an integer greater than or equal to 1;

n represents an integer from 0 to 12;

and {}ⁿ denotes the branched structure of the generation n chains of said dendritic polymer.

89. (Withdrawn) A method for preparing a dendritic polymer according to claim 54, comprising:

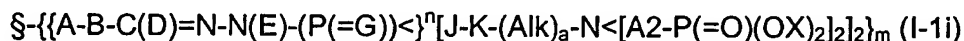
(i) reacting the corresponding dendritic polymer having a terminal function -CHO, -CH=NR, -NH₂ or -P(=G)Cl₂

with a corresponding compound having one or two functionalities -PO₃X₂ ;

(ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer obtained in (i) having a $-\text{PO}_3\text{Me}_2$ termination into the corresponding dendritic polymer having an $-\text{A1}<[\text{A2-P(=O)(OH)}_2]_2$ termination,

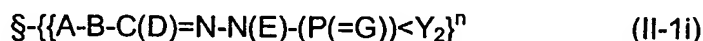
(iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer obtained in (ii) having an $-\text{A1}<[\text{A2-P(=O)(OH)}_2]_2$ termination into the salt of the corresponding dendritic polymer having an $-\text{A1}<[\text{A2-P(=O)(OM)}_2]_2$ termination.

90. (Withdrawn) A method for preparing a dendritic polymer according to claim 89, wherein, when the dendritic polymer according to the invention is represented by the formula (I-1i)



in which \S , A, B, C, D, E, G, N, P, J, K, A2, Alk, X, a, m, n, and < have the meanings defined above,

step (i) comprises reacting with the corresponding dendritic polymer of the same generation n of the formula



wherein Y represents $-\text{Cl}$;

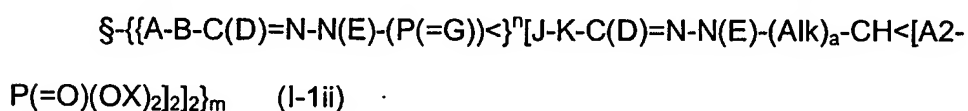
a compound of formula $\text{H-J-K-(Alk)}_a\text{-N}<[\text{A2-P(=O)(OX)}_2]_2 \quad (\text{III}).$

91. (Withdrawn) A method according to claim 90, wherein the reaction is carried out in solution in a polar aprotic solvent, in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C .

92. (Cancelled)

93. (Cancelled)

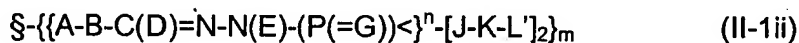
94. (Withdrawn) A method according to claim 89, wherein, when the dendritic polymer according to the invention is represented by formula (I-1ii)



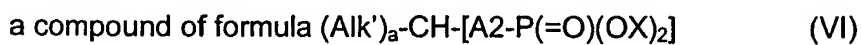
in which:

\S , A, B, C, D, E, G, N, P, J, K, L, X, A2, m, n, and a have the meanings defined above,

step (i) comprises reacting with the corresponding dendritic polymer of formula



wherein L' represents a radical -CHO ;



wherein Alk' corresponding to Alk defined above in formula (I-1ii) represents a radical Alkenyl, and X has the meaning defined above, in the presence of a compound of formula



95. (Withdrawn) A method according to claim 94, wherein the reaction is carried out in a polar aprotic solvent medium, by addition of the compounds (VI) and (VII) to the dendritic polymer (II-1ii) at a temperature of from -80°C to 100°C.

96. (Withdrawn) A method for preparing a dendritic polymer according to claim 89, wherein step (ii) is carried out:

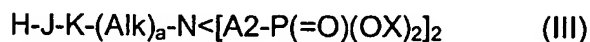
- by the action of a trimethylsilane halide,
- followed by the action of anhydrous MeOH, which is added to the reaction mixture.

97. (Withdrawn) A method according to claim 96, wherein the procedure is carried out in a polar aprotic organic solvent by addition of the trimethylsilane halide while keeping the reaction mixture at a temperature of from -80°C to 50°C.

98. (Withdrawn) A method for preparing a dendritic polymer according to claim 89, wherein in step (iii) a salt of a compound according to the invention is obtained starting from a compound according to the invention having a terminal group in which X represents a hydrogen atom.

99. (Withdrawn) A method for preparing a dendritic polymer according to claim 98, wherein the procedure is carried out in solution, in a suitable polar protic or aprotic solvent, in the presence of an organic or inorganic base, depending on the salt that is desired.

100. (Withdrawn and Currently Amended) A compound of formula (III):



in which

X represents a radical -Alkyl, -C(=O), -Aryl, H or M⁺, wherein M⁺ is a cation;

J represents an oxygen atom, a sulfur atom or a radical -NR-;

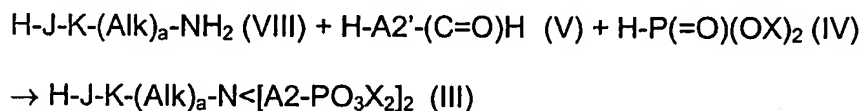
K represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO₂, -NRR', -CN, -CF₃, -OH, -Alkyl, -Aryl, or -Aralkyl ;

the radicals A₂, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, preferably nitrogen, each chain member being optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO₂, -NRR', -CN, -CF₃, -OH, -OAlkyl, -Aryl, and -Aralkyl;

-Alk- represents an alkyl radical; and

a represents 0 or 1.

101. (Withdrawn) A method for preparing a compound of formula (III) according to claim 100, comprising the following step:



wherein, in formula (V), -A₂'- is a radical corresponding to A₂.

102. (Withdrawn) A method according to claim 101, wherein the procedure is carried out by addition of the compounds (VIII) and (IV), and of the compound (V), at a temperature of from -5 to 25°C.

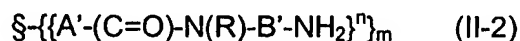
103. (Withdrawn) A method for treating or being in contact with surfaces comprising using a dendritic polymer according to claim 54.

104. (Withdrawn) A method according to claim 103, wherein said surfaces are metal, silica-based or oxide-based.

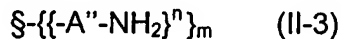
105. (Withdrawn) A method according to claim 103, wherein said dendritic polymer is used as an additive in a composition that is to be in contact with or to treat said surface.

106. (Withdrawn) A method according to claim 103, wherein said dendritic polymer is used as an anti-corrosive agent, a lubricating agent, a scale preventer or as a flame retardant.

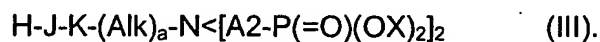
107. (New) A method for preparing a dendritic polymer according to claim 89, wherein, when -A1< is N<, step (i) comprises reacting with the corresponding dendritic polymer of the same generation n of the formula



or



a compound of formula (III)



where \S , A', A'', B', X, R, m, and n are as defined in claims 54, 70 or 72.